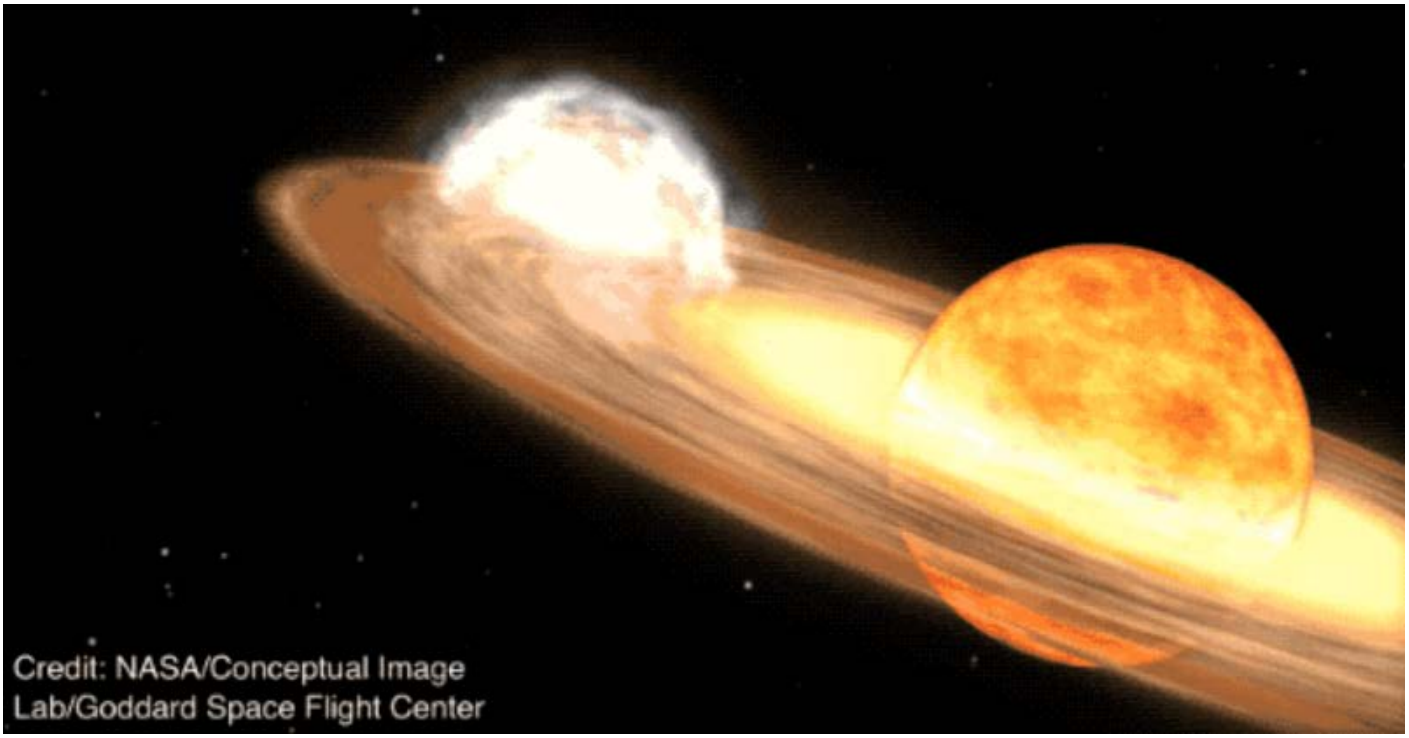
PAS-Times

Volume 65, Issue 4 April, 2024

The newsletter of the Pontchartrain Astronomy Society

visit us online at www.Astronola.clubexpress.com

View Nova Explosion, 'New' Star in Northern Crown



A star system, located 3,000 light-years away from Earth, is predicted to become visible to the unaided eye soon. This could be a once-in-a-lifetime viewing opportunity as the nova ouburst only occurs about every 80 years. T-Coronae Borealis, or T CrB, last exploded in 1946 and astronomers believe it will do so again between February and September 2024.**(more on page 4)**

April topic: Discussion of Solar Eclipse

Next PAS General Meting: Wednesday, April 17 7:00 PM
Jeffeson Parish East Bank Library in Metairie
also available via Zoom See page 7

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President's Message

By: Barry Simon

Our third meeting at the Jefferson Parish East Bank Regional Library (let's start calling it the MML for short, it's easier). This stands for the Metairie Main Library. Any way our move to the MML continues to prove that the move was a good thing. We had an attendance of 42 at the March meeting and that was great! Our positive attendance trend continues!

As we did in February we started the March meeting with our monthly presentation coming before the club business meeting. This too has had good feedback, especially helpful as we are getting plenty of guests as the library advertises our meetings.

At our April meeting on the 17th we will of course review the April 8th total solar eclipse, the Great American Eclipse, seen first in Texas where several of our PAS members traveled to see the eclipse. Many of us did have our moments (maybe more than a few moments) of anxiety as the weather forecast was somewhat tentative, perhaps even unfavorable. While I cannot comment on how all of our fellow Texas travelers did, I was lucky in Dallas. I was set up on the western shore of White Rock Lake. The skies were partly cloudy at the beginning with partial phases leading up to totality. Amazingly it cleared for a large part of the sky just before totality, amazingly clear! I did not do too much in the way of photography. I did take a few that I will show at the April meeting, it was truly an amazing day!

In other news be reminded that these months – April thru mid-June, are typically good astronomical observing months, so make the most of it. There are opportunities with the Deep South Spring Scrimmage just around the corner and running from Wednesday May 1st to Sunday May 5th at the White Horse Retreat Camp. Additionally one month following that is the Wes-Tex Star Party held at the Prude Ranch near Ft. Davis, TX from June 1st thru June 7th. While we have a full complement of PAS members in one bunk house there is still plenty of room available on site. Consider attending and if so inclined contact the Prude Ranch and make a reservation. This year will be my 7th time staying at the Prude Ranch with an additional 2 trips where I stayed off-site but very nearby. This is a place where you can really reach out and touch the stars!

There will be more news about a variety of topics at the April meeting. We hope to have another great turnout!

Clear Skies!

John Arnauld Scholl, of Covington, a long-time member of the PAS, passed away on March 15, 2024, at the age of 84. The members of the PAS send their condolences to John's family, and wish him well in his celestial home where we know he will always have clear skies.

Secretary's Report

by Clariza Kern

The PAS meeting of 20 March was called to order by Barry Simon, PAS President, at 7:00PM. There were 42 persons present including 14 visitors. After welcoming members and guests, Barry turned the meeting over to Mike Danielson, Vice President. Mike then introduced the night's speaker, John Martinez, NASA Solar System Ambassador. The subject of John's talk was "NASA's Europa Clipper Mission to Jupiter."

John gave a fascinating and informative presentation on the Europa Clipper and its mission to Europa, an icy moon of Jupiter. Europa is believed to have liquid water oceans beneath its icy crust, and these oceans may contain twice as much water as all of Earth's oceans combined. The Europa Clipper is expected to launch in October 2024 and begin orbiting Jupiter and Europa in 2030. The spacecraft will perform dozens of close flybys of Europa, gathering detailed measurements to investigate the moon. If all goes well, data will begin streaming back to Earth by 2032. The mission objectives are to study the geology and potential habitability of Europa. Europa may have conditions that support primitive microbial life.

After a brief break, the PAS business meeting began at 8:00PM. Barry asked guests if they would introduce themselves and several responded. Bill Johnson gave an update on SPMOS. The land went up for sale in February, and there is already an agreement to purchase the land. However, PAS may have the option of using the land for two years or more if PAS maintains the property. Discussions with the new property owners are underway. Stay tuned.

Mike Danielson, PAS vice president, requested that anyone wishing to give a presentation to the PAS should contact him. Larry Smith, PAS Times Editor, is always looking for articles for the newsletter. Clariza Kern, Secretary, remarked that the new meeting venue and meeting format have been a success. Clariza's monthly reports are published in the PAS Times newsletter. The PAS ALCOR (Astronomical League Correspondent) Nanette Johnson stated that the Astronomical League has a solar eclipse observing challenge. Details can be found on the Astronomical League website.

Barry Simon noted that three astronomical events are coming up very soon. The total solar eclipse will occur on Monday, 8 April. The Deep South Spring Scrimmage at the White Horse Christian Retreat Camp takes place 1-5 May. The WestTex Star Party on Prude Ranch begins on 1 June. Ten people from the PAS are going to WesTex.

On Thursday, 21 March, Barry Simon gave a most interesting talk at the St. Tammany Parish Library in Mandeville on the upcoming 8 April total solar eclipse. The talk began at 6:00PM. Barry explained why an eclipse happens and the types of eclipses that can occur. He also showed maps of the April eclipse path and explained what to expect during the eclipse. Barry's presentation was well attended, especially considering it was a dark and stormy night. Questions at the end indicated a lot of local interest in the eclipse.

Long time PAS member John Scholl passed away on 15 March 2024. PAS members sent his wife and family our sincere condolences.

We are in need of presentations for future PAS General Meetings.

If you would like to work on presentation skills in a very informal setting and discuss anything Astronomy related in any manner you choose, please contact Mike Danielson, or any PAS officer about what you would like to present about.

Presentations should be between 30-60 minutes and lend itself to open discussion of the topics presented.

We will be happy to work with you and find a date that works for you.

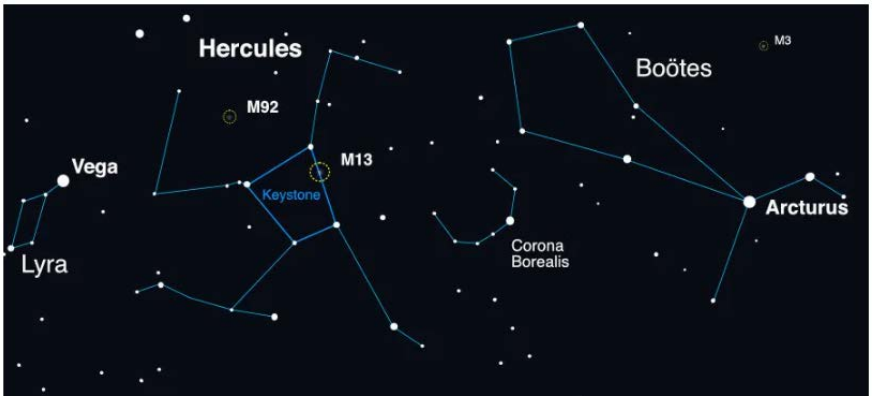
A hearty WELCOME to the newest members of the Pontchartrain Astronomy Society! The members listed below have joined the PAS in 2024. We are happy to have you as a member, and would love for you to reach out and say hello, so we can better get to know you.

Blaise Serpas	**Dana Kieferle-Bower**	**Adam Gaudry**	**Jenny Monroy**	**George P. Dorsey, Jr.**
Cody Scott	**Bob Brockway**	**Jabeen Pasha**	**Leon Zebrick**	**Rockne Hymel, Jr.**

One of the five recurring novae in our Galaxy is predicted to explode this year.

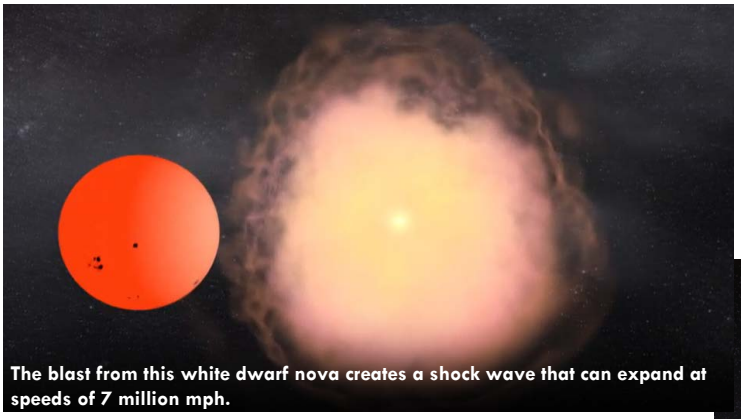
The star system, normally magnitude +10, which is far too dim to see with the unaided eye, will jump to magnitude +2 during the event. This will be of similar brightness to the North Star, Polaris.

Once its brightness peaks, it should be visible to the unaided eye for several days and just over a week with binoculars before it dims again, possibly for another 80 years.



As we wait for the nova, become familiar with the constellation Corona Borealis, or the Northern Crown — a small, semicircular arc near Bootes and Hercules. This is where the outburst will appear as a "new" bright star.

This recurring nova is only one of five in our galaxy. This happens because T CrB is a binary system with a white dwarf and red giant. The stars are close enough that as the red giant becomes unstable from its increasing temperature and pressure and begins ejecting its outer layers, the white dwarf collects that matter onto its surface. The shallow dense atmosphere of the white dwarf eventually heats enough to cause a runaway thermonuclear reaction – which produces the nova we see from Earth.



The blast from this white dwarf nova creates a shock wave that can expand at speeds of 7 million mph.

A nova is a sudden, short-lived explosion from a compact star not much larger than Earth. The outburst comes from a collapsed star known as a white dwarf, which circles so close to a normal star that a stream of gas flows between them. This gas piles up into a layer on the white dwarf's surface until it reaches a flash point and detonates in a runaway thermonuclear explosion. Astronomers estimate that between 20 and 50 novae occur each year in our galaxy, but despite their power most go undiscovered. NASA's Fermi Gamma-ray Space Telescope has observed several nearby novae and found that each blast produces gamma rays, the most energetic form of light. Scientists think the gamma rays result from collisions among multiple shock waves that race from the site of the explosion in a rapidly expanding shell of debris.

The white dwarf remains intact even though the explosion releases as much energy as our sun emits in 100,000 years.

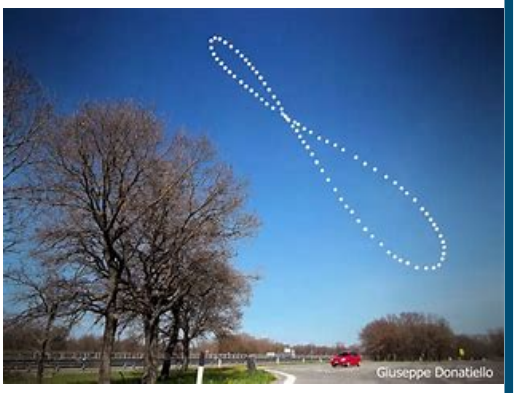
Image and text from NASA.com

Analemma

by Barry Simon

An analemma is a figure-eight-shaped diagram that represents the apparent motion of the Sun in the sky, as viewed from a fixed location on Earth, typically at the same time each day over the course of a year. This motion is a result of the combination of the tilt of the Earth's axis and its elliptical orbit around the Sun. The analemma shows the Sun's declination (its angle north or south of the celestial equator) and its deviation from mean solar time (the time as measured by a perfect clock) throughout the year. An image of an analemma can be seen in many places, including sundials, astronomical diagrams and most typically on a world globe. During World War II, the analemma was used primarily in navigation and celestial navigation. Navigators, especially those on ships and aircraft, relied heavily on celestial navigation techniques to determine their positions accurately. The analemma played a crucial role in celestial navigation because it helped navigators calculate the Sun's position relative to the observer's position on Earth at different times of the day and year. By consulting tables or diagrams that showed the analemma, navigators could determine the Sun's declination and its apparent solar time correction, allowing them to calculate their latitude and longitude accurately. This information was vital for plotting courses, avoiding hazards, and determining the precise location of vessels and aircraft.
Additionally, the analemma could also aid in determining the time accurately, which was crucial for coordinating operations and maintaining schedules during wartime.

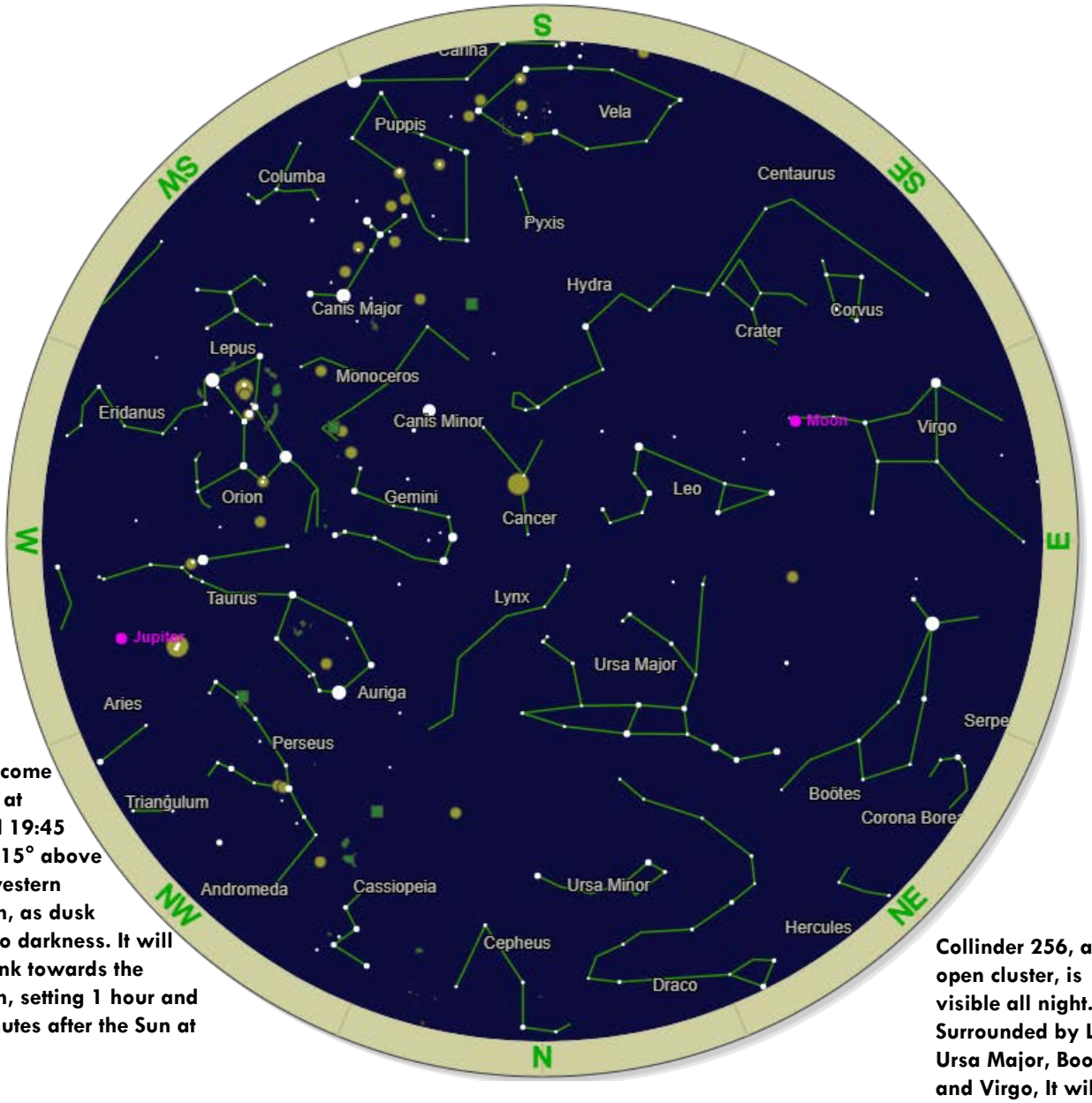
Overall, the analemma served as a valuable tool for navigators and played a significant role in ensuring the success and safety of military operations during World War II.



If you take a picture of the Sun at the same time each day every several days or as little as once a week (on one single frame), the shape traced out by the Sun over the course of a year is an analemma. Note that with digital technology the process is even easier. With a small table top tripod that will fit comfortably on a window sill (mark spots for the tripod legs on pieces of tape on the window sill. Position your camera (that will be dedicated to this project for the next year). Aim at something like the corner of a distant chimney and aim at this spot every day that you take the pictures. Use a lens that has a wide enough field of view that you will likely capture all of your solar images over the course of the year. When everything is composed (before the Sun comes into the field of view) put a solar filter over the lens and take your picture. Follow the same procedure each week. When the year is up you can stack your digital images in a program like Registax. You may also want to combine your stacked images with a normal shot during daytime of the same target area (the chimney target) so the Analemma appears to be in daylight. If done correctly what you get should look like the image you see on a globe.

The Sun's apparent shift is caused by the Earth's motion around the Sun when combined with the tilt of the Earth's rotation axis. The Sun will appear at its highest point of the analemma during summer and at its lowest during winter. Analemmas created from different Earth latitudes would appear at least slightly different, as well as analemmas created at a different time each day. Do not forget about clock correction for "Daylight Savings" time. If you start imaging when Daylight Savings time is on, keep it on (compensate for it) for the full year. If you start when it is standard time, for the purpose of your picture, keep the time as standard when you take your photos.

Night Sky April 20 at 8PM



Jupiter will become visible at around 19:45 (CDT), 15° above your western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting 1 hour and 33 minutes after the Sun at 21:03.

Alphecca, in Corona Borealis, is visible in the morning sky, becoming accessible around 20:46, when it reaches an altitude of 14° above your north-eastern horizon. It will then reach its highest point in the sky at 02:39, 86° above your southern horizon. It will be lost to dawn twilight around 05:38, 50° above your western horizon.

M44, the Beehive Cluster, in Cancer, will become visible at around 20:27 (CDT), 74° above your south-western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 02:24.

The double-star NGC2542, located just north of Puppis, and between Canis major and Hydra, will become visible at around 20:29 (CDT), 43° above your south-western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 00:45.

Collinder 256, an open cluster, is visible all night. Surrounded by Leo, Ursa Major, Bootes and Virgo, It will become visible at around 20:03 (CDT), 34° above your eastern horizon, as dusk fades to darkness. It will then reach its highest point in the sky at 00:21, 86° above your southern horizon.

Upcoming Events

PAS General Meeting- Wednesday , April 17, 7 PM (and on ZOOM)

Wed. May 1 - Sun. May 5 Deep South Spring Scrimmage at White Horse Retreat Center

Sat. June 1 - Fri. June 7 Westex Star Party at Prude Ranch (details at April General Meeting)

You can join our meetings with Zoom

Zoom info is below if you want to attend but cannot be there in person. We hope to have you join us!
Topic: PAS April General Meeting, Wednesday April 17 at 7PM Central Time (US and Canada) Join Zoom Meeting (paste both lines together as one URL)
https://us02web.zoom.us/j/88096680914?pwd=VVRnaHpKZWtyVVh2a1RVS2crOWhmQT09
Meeting ID: 880 9668 0914
Passcode: 207583

On the Cover: **Artist's image of a double-star nova expolsion. Credit: NASA**

On the Back Cover: **Total Solar Eclipse by Barry Simon**

The PAS is a proud member of these organizations:

PAS General Meetings
7 PM at Jefferson Parish East Bank Library

April 17, 2024
May 15, 2024
June 19, 2024
July 17, 2024
August 21, 2024
September 18, 2024
October 23, 2024
November 13 2024
December 18, 2024

May 2024
PAS-Times Deadline

Sunday, May 11

Please submit all things astronomical to be included in the next edition of PAS- Times to the editor at the following address: vicepres2@astronola.org

2024 Membership Renewal Form

Date _____

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Calendar year per household) $40.00
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Only pay this if you do not have a Dorm key and want to obtain one.

Optional Donation: (Tax Deductible)_____

Total Amount: _____
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Members can also renew their membership and pay dues on the website. Here is the link: www.astronola.clubexpress.com

Pontchartrain Astronomy Society, Inc.
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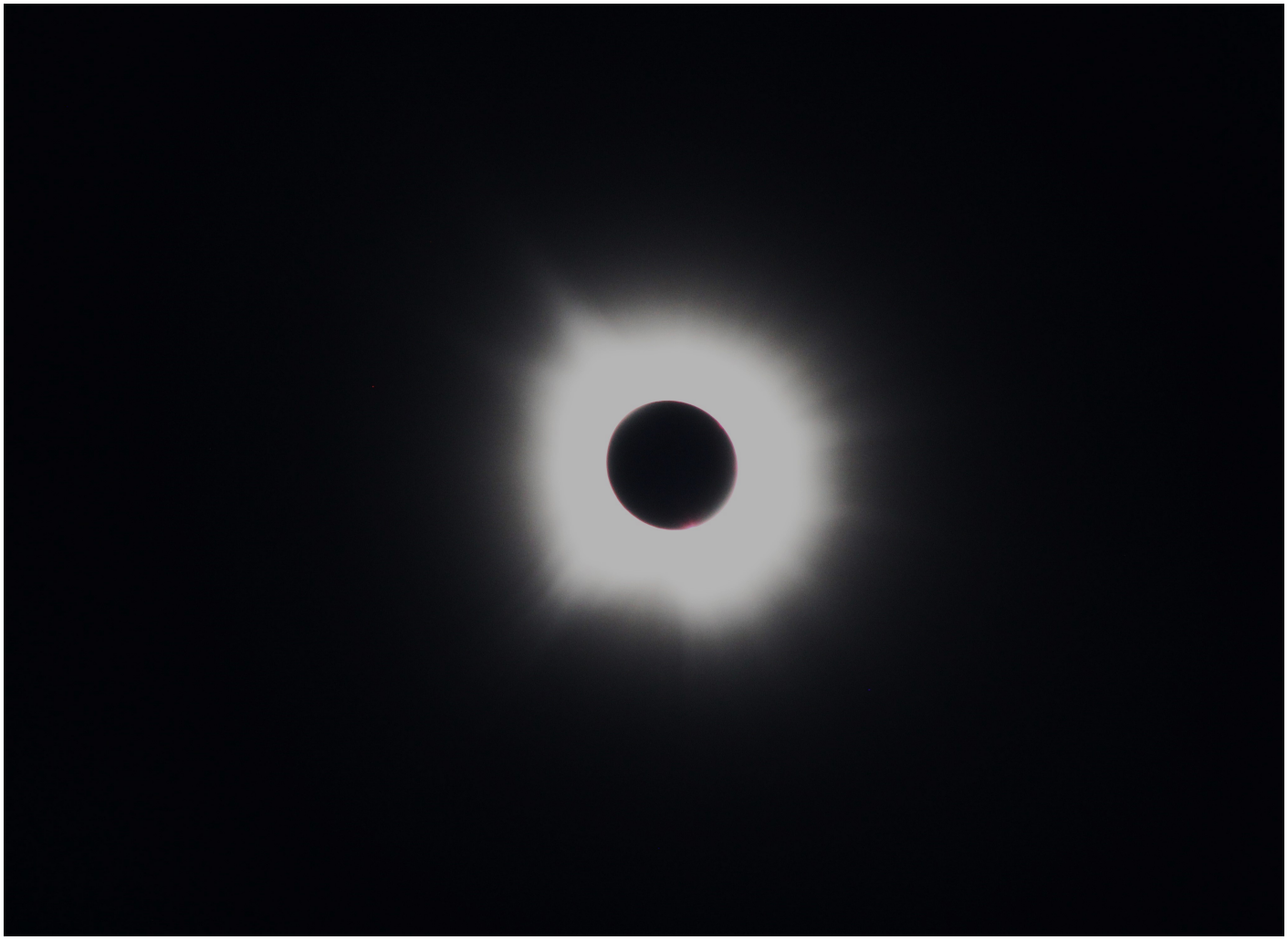
1164 Rue Chinon
Mandeville, Louisiana 70471



Total Solar Eclipse by Barry Simon using a Stellarvue SV60EDS which is an APO doublet with FPL-53 glass. The focal length is just 330 mm which means it is an f/5.5 system.

The Pontchartrain Astronomy Society, Inc. is an organization of amateur astronomers representing the greater New Orleans area, southeastern Louisiana and adjacent parts of Mississippi. Our members come from many walks of life, and have a common interest in astronomy and observing the sky. The PAS aims to enhance the study and enjoyment of astronomy among our members, and to promote an understanding of astronomy in our local community.